

National Climatic Data Center

DATA DOCUMENTATION

FOR

DATA SET 3641 (DSI-3641)

Global Tropical Cyclones - ISCCP B1
Satellite Observations

August 31, 2006

National Climatic Data Center
151 Patton Ave.
Asheville, NC 28801-5001 USA

Table of Contents

Topic	Page Number
1. Abstract.....	1
2. Element Names and Definitions.....	1
2.1 File Storage Format.....	1
2.2 File naming convention:.....	1
2.3 Global Attributes:.....	3
2.4 Variables:.....	3
3. Start Date.....	4
4. Stop Date.....	6
5. Coverage.....	6
6. How to Order Data.....	6
7. Archiving Data Center.....	7
8. Technical Contact.....	7
9. Known Uncorrected Problems.....	7
10. Quality Statement.....	7
11. Essential Companion Datasets.....	8
12. References.....	8

1. Abstract

The "Global Tropical Cyclone ISCCP B1 Satellite Observations" (TC-B1) data consist of raw satellite observations derived from the ISCCP B1 data centered on historical tropical cyclones (TC). The data derive from the global constellation of geostationary satellites (GOES, GMS and Meteosat series) spanning 1983 through the present. The data are available at 3-hour intervals and are gridded to roughly 8km resolution. The data include infrared window, visible and other channels available from the satellite instruments. Hurricane database (HURDAT) and "best track" information (from the JTWC) were temporally-interpolated to match the satellite data resolution. The satellite data were then gridded to 8km, with grid centers fixed on the tropical cyclone center of circulation. Data include hurricanes from the North Atlantic, Pacific and Indian Ocean Basins. Data are provided in a convenient NetCDF format which is self-documenting and follows standard storage and meta-data conventions. This data set will be updated on an as needed basis.

2. Element Names and Definitions

2.1 File Storage Format and Conventions

File storage format:
NetCDF version 3

File storage URL:
<http://www.unidata.ucar.edu/software/netcdf/>

File storage convention:
COARDS (for TC-B1 data, version 1)

File storage convention URL:
http://ferret.wrc.noaa.gov/noaa_coop/coop_cdf_profile.html

File metadata convention:
<http://www.unidata.ucar.edu/software/netcdf-java/formats/DataDiscoveryAttConvention.html>

2.2 File naming convention:

(Note: All times referenced in the naming convention are to the Universal Time Code, UTC)

YyysBbNnn.Yyyn.Mm.Dd.Hhmm.Vv.Sat-Nn.Www.isccp-blu.ver.nc
Where:

Yyys = The year the tropical cyclone began (this may be different than YyyN if the cyclone began near the end of the year).
 Bb = Basin ID:
 EP = Eastern Pacific
 IO = Indian Ocean
 NA = North Atlantic
 SH = Southern hemisphere
 WP = Western Pacific
 Nnn = Storm ID. If a storm name is available, then this is the first 3 letters of the storm name. Otherwise, this is a zero-filled integer.
 YyyN = Year of acquisition of the satellite image
 Mm = Integer representing the month of the image acquisition 01=January, 02=February, ..., 12=December
 Dd = Day of month of the image acquisition
 Hhmm = Time of the satellite acquisition where Hhmm is Hh:mm UTC. The time represents the time the image acquisition began. Since images take at most 28 minutes to acquire, that represents the largest difference in time between the image and this subset of the image.
 Vv = View zenith angle (degrees) from the satellite to the tropical cyclone center of circulation.
 Sat-Nn = ISCCP Satellite ID where:
 GOE = GOES (U.S.A.)
 MET = Meteosat (Europe)
 GMS = GMS (Japanese)
 MTS = MTSAT (Japanese)
 Www = Interpolated central wind speed. This is interpolated from the 6-hourly BEST track wind speed.
 isccp-blutC = file suffix that identifies the data file and the file format
 ver = file version. Initially, only version 1 (v01) exists, but future versions are forthcoming.
 nc = file suffix identifying the file as a NetCDF file.

Example:

1992SH027.1993.01.01.0300.26.GMS-4.070.isccp-blutC.v01.nc

Means:

Year storm began	= 1992
Basin	= Southern Hemisphere (SH)
Storm ID	= 027
Image obtained - Year	= 1993
Image obtained - Month	= 01 (January)
Image obtained - Day of Month	= 01
Image obtained - Time	= 0300 = 03:00 UTC
Satellite view zenith angle	= 26 deg
Satellite	= GMS-4

Tropical Cyclone Wind Speed = 70 [UNITS??]
Dataset id = isccp-blutc
Version = 1
File type = nc (NetCDF file)

2.3 Global Attributes:

Note: Information on the Global Attributes can be obtained using the netCDF utility: ncdump

The bulk of the global attributes derive from the "Unidata Dataset Discovery v1.0" which is described at:

<http://www.unidata.ucar.edu/software/netcdf-java/formats/DataDiscoveryAttConvention.html>

or the COARDS convention described at:

http://ferret.wrc.noaa.gov/noaa_coop/coop_cdf_profile.html

A description of the attributes not listed in these conventions follows:

Attribute: **Cyclone_ID**
Description: The tropical cyclone ID. See the description of the format above (in the file naming convention).

Attribute: **Cyclone_Name**
Description: The tropical cyclone name (if available) as provided in the interpolated best track/HURDAT data from Jim Kossin.

Attribute: **base_date**
Description: This is the year/month/day_of_month of the satellite image.

Attribute: **Projection**
Description: Lists the projection "Mercator" of the gridded data.

Attribute: **Satellite_Name**
Description: The name of the satellite making the observation.

Attribute: **Sensor_Name**
Description: Name of the satellite instrument making the observation.

Attribute: **B1_file**
Description: File name of the ISCCP B1 file in the NCDC archive from which this data was derived.

Attribute: **cvvs_info_b12blu**
Description: CVS information regarding the routine used to convert the ISCCP B1 file to a uniform format (ISCCP B1U).

Attribute: **cvvs_info_b1read**
Description: CVS information regarding the routine used to read the generic ISCCP B1 data.

Attribute: **cvvs_info_SpcSat**
Description: CVS information regarding the specific routine used to read the data (which is specific by processing center and satellite).

Attribute: **cvvs_info_b12nc**
Description: CVS information regarding the routine used to extract the tropical cyclone grids from the ISCCP B1 data

Attribute: **cvvs_info_nc2v01**
Description: CVS information regarding the routine used to modify the NetCDF data to include the required attributes. This attribute will not appear in version 2 data as it will be part of the b12nc algorithm.

2.4 Variables:

Note: Information on the variables can be obtained using the netCDF utility: ncdump

Again, COARDS conventions define the add_offset, scale_factor, long_name and units attributes. We only describe that which can not be obtained from *ncdump* and an understanding of the COARDS convention.

Element Name: lat
Definition: Latitude dimension vector of the corresponding satellite observation grids.

Element Name: lon
Definition: Longitude dimension vector of the corresponding satellite observation grids.

Element Name: VZA
Definition: Satellite view zenith angle.

Element Name: IRWIN
Definition: Infrared window channel brightness temperature observation. The data is provided in scaled temperature. The original B1 data were calibrated using the ISCCP absolute calibration (version was that as of May 2006). The data were further calibrated using coincident HIRS observations and provided corrections to the ISCCP calibration. The application of the correction is described below.

Attributes

Calibration_Correction_Equation: *This is the equation on how the calibration correction should be applied.*

Calibration_Correction_Scale: *The scale used in the calibration correction.*

Calibration_Correction_Offset: *The offset used in the calibration correction.*

Calibration_Correction_AppendDate: *The date the calibration correction was appended to the file.*

Calibration_Correction_TableVersion: *The filename and version of the calibration correction from which the correction derives.*

Depending on the availability of channels the following channels are optional for all data sets.

Element Name: VSCHN (*optional*)

Definition: Visible channel observations.

Element Name: IRWVP (*optional*)

Definition: Infrared window channel observations.

Element Name: IRSPL (*optional*)

Definition: Split window channel observations.

Element Name: IRNIR (*optional*)

Definition: Near-infrared channel observations.

The following variables will likely be moved to global attributes in future releases of the data.

Element Name: NomDate

Definition: Nominal starting date (UTC) of the satellite image. This is generally of the form YYJJJ where YY is the last two digits of the year and JJJ is the day of the year. Note: It may also be of a format which includes a 4-digit year. That is, YYYYJJJ.

Element Name: NomTime
 Definition: The nominal starting time (UTC) of the satellite image, of the format HHMMSS

Element Name: sss
 Definition: Sensor ID. The missing value is -9999. A table of the McIDAS sensor IDs is available at:
http://www.ssec.wisc.edu/mcidas/doc/misc_doc/area2.html (sensor source numbers)

Element Name: nchan
 Definition: Dimension describing the number of available channels from the instrument.

Element Name: SubSatLat
 Definition: The satellite nadir point latitude at the time of the image observation.

Element Name: SubSatLon
 Definition: The satellite nadir point longitude at the time of the image observation.

3. Start Date

19830701

4. Stop Date

Ongoing

5. Coverage

- a. Southernmost Latitude: 90S
- b. Northernmost Latitude: 90N
- c. Westernmost Longitude: 180W
- d. Easternmost Longitude: 180E

6. How to Order Data

Ask NCDC's Climate Services about costs of obtaining this dataset.

Phone 828-271-4800
Fax 828-271-4876
e-mail NCDC.Orders@noaa.gov

7. Archiving Data Center

a. Name: National Climatic Data Center/NCDC
Address: Federal Building
151 Patton Ave.
Asheville, NC 28801-5001
Voice: 828-271-4800
Fax:
Email:

8. Technical Contact

a. Name: Ken Knapp
Address: National Climatic Data Center
151 Patton Ave.
Asheville, NC 2801-5001
Voice: 828-271-4339
Fax: 828-
Email: Ken.Knapp@noaa.gov

b. Name: RSAD Chief
Address: National Climatic Data Center
151 Patton Ave.
Asheville, NC 2801-5001
Voice: 828-271-4339
Fax: 828-
Email:

9. Known Uncorrected Problems

The version 1 data are not fully CF compliant. However, the data are COARDS compliant and are thus usable with grads-dods and other data processing routines which make use of the COARDS convention. Future versions of the data will be fully CF compliant.

10. Quality Statement

Disclaimer: While every effort has been made to ensure that these data are accurate and reliable within the limits of the current state of the art, NOAA cannot assume liability for any damages caused by any errors or omissions in the data, nor as a result of the failure of the data to function on a particular system. NOAA makes no warranty, expressed or implied, nor does the fact of distribution constitute such a warranty.

This dataset has undergone extensive quality checks on all parameters, including range checks and elimination of reporting sites with extensive missing data.

11. Essential Companion Datasets

None.

12. References